Item #12: Elk and Mule Deer Winter Range Browse Production

Evaluation Objectives: To evaluate relationship between elk and mule deer winter range browse production, elk and mule deer populations, and forest management practices.

Methods: Browse production on tree-dominated sites is determined by the percent of tree canopy closure as it relates to plant successional stage. On shrub-dominated sites, browse production is greatest for the early years following a disturbance. Browse production is estimated by the amount of conifer dominated stands compared to open or early seral stands.

Evaluation: Forage conditions on winter ranges have not been calculated since the 1991 monitoring report that described conditions as 17.5% of the winter range (of 58,844 acres) were considered forage or forest forage habitat. About 10% of non-timber production sites had been treated between 1986-1991 to improve forage production. Habitat improvement projects from 1992-97 resulted in approximately 15% of shrub dominated elk and mule deer winter range sites receiving treatment to improve forage production. Projects between 1998 and 2007 improved over 24,000 acres for big game and other species (Table 12-1). These acres do not include acres associated with security habitat as a result of motorized access management restrictions or wildfire. Improvement acres are provided below and reflect total acreage. While these are not reported by winter or summer habitat, the forest does place an emphasis on treating winter range. Between 2008 and 2010 approximately 53,364 acres have been improved or acquired.

In the early 1990s, an annual average of 800 acres were improved primarily for big game. During the period after 1997, an annual average of 1,400 acres were improved primarily for big game. Additional acres (400 annual pre-1997 and 1,400 annually post-1997) of habitat improved primarily for threatened and endangered species and therefore would generally have improved conditions for big game as well. During 2008, 2009 and 2010 over 2,300 acres per year were improved for wildlife with most of these acres benefiting big game. An additional 2,600 acres per year benefited threatened and endangered species much of which were for grizzly bear secure habitat needs that benefit a wide range of other species.

This amount of habitat improvement acres for wildlife and threatened and endangered species is well above the +/-200-300 acres estimated annual from the Forest Plan desired condition. In addition to this timber harvest, wildfire and fire use management have created a diversity of habitat conditions generally favorable for big game. Thousands of acres have also been improved for grizzle bear habitat security through access management accomplishments such as road decommissioning and motorized vehicle restrictions (see Table 16b-10 in item 16).

Prescribed fire is being used more for wildlife habitat improvement projects and is being used in many forest locations to reduce fuel concentrations. Some of these areas are in winter, transitional, or summer ranges. In times of mild winters, many non-traditional areas are utilized by big game as higher elevations remain snow free. Thousands of acres of wildfire have occurred since 2000 which also contribute to forage production.

Table 12-1. 1998 – 2010 Projects to Improve Forage Production for Big Game

Year	RD	Project Name	Burned or slash/burn Acres	Tree/ shrub slashing Acres	Shrub planting Acres	Weeding Acres	Various Acres	Acquired Acres
1977	SB	Horse Ridge Slash and burn	15					
1978	SB	Horse Ridge LPP thinning		22				
1978	Forest	100 gates purchased						
1979	SB	Spotted Bear WR Burn	300					
1980	SB	SB RD LPP burning	60					
1980	SB	Spotted Bear WR Rx burn	180					
1980	SL	Browse reduction and release		50				
1981	SL	Elk/mule deer WR burning	20					
1981	SB	Spotted Bear WR burn	200					
1982	SL	Swan Lake WR, Sum/Fall Burn	115					
1982	SL	Swan Lake Release Pruning		30				
1982	Forest	Seeding for wildlife					1145	
1983	SB	Dry Park-Peters Rdg Rx burn	150					
1983	SL	Swan Lake WR Rx Burn	37					
1983	SB/HH	Seeding for wildlife					250	
1984	SL	Wolf Creek Burn	250					
1984	SL	Bear Creek Burn	200					
1985	SL	Bear Creek Browse Slashing		100				
1989	SL	Smith Cooney Shrub Slashing		120				
1989-92	SB	SB Mtn elk habitat Imp Starts						
1984-90	Forest	missing data						
1991	TL	Eagle Creek Winter Range		88				
1991	HH	BPA Firefighter Mountain Burn	200					
1991	HH	BPA Lost Mare Rx Burn	115					
1991	SB	BPA Dry Park/Crossover Mtn Burn	100					
1991	HH	Up. Emery Cr (Notch) Rx Burn	155					
1992	GV	Glacier View Mtn Burn	150					
1993	GV	Cedar Ridge Browse Slash & Burn #1	250					
1993	HH	Baptiste Burn	150					
1993	TL	Tally Mountain Burn	100					
1993	SB	Weeds #1 - THs, airstrip, BMW				124		
1994	HH	Strawberry Ridge Burn	100					
1994	HH	Hungry Horse Mtn Rx Burn	80					
1994	HH	Hungry Horse Mtn. WRange / Firefighter Mtn Timber & Burn					1120	
1994	HH	Up. Emery Cr Natural Opening	155					
1994	SB	Dry Park/Crossover Mtn Burns	100					
1994	SB	Weeds #2 - airstrip, BMW				12		
1994	GV	Cedar Ridge Browse Slash & Burn #2	300					
1994	SL	Rumble Creek Burn	250					
1994	SL	Pony - Alder Burn	400					
1995	GV	Cedar Ridge Browse Slash & Burn #3	200					
1995	HH	Middle Fork Burns	150					
1995	SL	Noisy Face Browse Slashing		120				
1995	SL	Groom Cr Summer Range Burn	80					
1995	SL	Simpson Creek Burn	40					
1995	SL	Shepard Creek Rehab					50	
1995	SB	Dean Ridge Rx Burn	200					
1995	TL	Werner Peak South Burn	100					
1995	TL	Miller Creek		40				
1996	GV	Cedar Ridge Browse Burn #4	100					

Year	RD	Project Name	Burned or slash/burn Acres	Tree/ shrub slashing Acres	Shrub planting Acres	Weeding Acres	Various Acres	Acquired Acres
1996	GV	Whale Cr Browse Slash& Burn	100					
1996	SB	Dry Park/Crossover Mtn Burns	100					
1996	SB	Spotted Bear Mtn Burn	100					
1996	SL	Van East Burn	1000					
1996	TL	Elk Mountain Burn	225					
1996	TL	Tally Lake		165				
1997	SL	Groom Creek	450					
1997	SL	Rumble Creek	400					
1997	SL	Swan Lake Planting			110			
1997	SL	Tierra North	650					
1997	GV	Red Bench		12				
1997	SB	Dry Park/Crossover Mtn Burns	3766					
1997	HH	Big Creek and Cedar Flats		115				
1998	GV	Cedar Ridge	100					
1998	HH	Logan Creek	100					
1998		Reid Divide		150				
1998	SL/TL	Various locations			145			
1998	SB	Dry Pk, Horse Ridge, Bent Flat Weeds				1000		
1998	SL	Hunger Creek Burn	125					
1998	SL	Wolf Creek Burn	250					
1998	SL	Patrick Stoner Burn	120					
1999	SL	Bear Creek Rx Burn	300					
1999	HH	Red Bench		240				
1999	HH	Dean Ridge Burn	1500					
1999	HH	Spruce Creek		40				
1999	SL	Weed Lake Burn	150					
1999	SL	Dog Creek Burn	200					
1999	SL	Tierra North	1160					
1999	SL	Acquisition						1802
2000	SL	Lower Sixmile Burn #1 & Weed	250			55		
2000	SL	Crane Mtn			25			
2000	SL	Acquisition						705
2000	TL	Fly Round	115		75			
2001	SL	Deer Creek Burn	150					
2001	SL	Wolf Creek Burn	250					
2001	SL	Acquisition						1111
2001	SL	Gunderson Creek Burn	125					
2001		from WFRP?					1100	
2002	SB	Bob Marshall Weed Control				70		
2002	SL	Sixmile		75				
2002	SL	Orvis Evans	600					
2002	SL	Birch Creek	175					
2002	SL	Patterson Creek	700					
2002	SL	Schmidt Creek	600					
2003	HH	Paint-Emery	517					
2003	SB	Weed Control #3 Bob Marshall				15		
2003	SL	Acquisition						2296
2004	SB	Weed Control #4 Bob Marshall				50		
2004	SL	Red Owl Burn	200					
2004	SL	Haskill East Burn	105					
2004	SL	Upper Weed Burn	50					
2004	SL	Acquisition						1185
2004	SL	Sixmile Mountain Area		50				
2005	SB	Weed Control #5 Bob Marshall				38		

Year	RD	Project Name	Burned or slash/burn Acres	Tree/ shrub slashing Acres	Shrub planting Acres	Weeding Acres	Various Acres	Acquired Acres
2005	SL	Shrub and Tree Planting			100			
2005	SL	Acquisition						95
2006	SB	Weed Control #6 Bob Marshall				47		
2006	SL	Acquisition						1018
2006	HH	Paint-Emery/Firefighter Mtn.	2350					
2006	SL + TL	Shrub and Tree Planting			368			
2006	SL	Sixmile Burn #2	650					
2007	SB	Weed Control #7 Bob Marshall						
2007	SL	Parker Creek Burn	250					
2007	SL	Glen Creek Burn	80					
2008	TL	Access					1680	
2008	SL	Weed treatments				100		
2008	SL	Sixmile Burn # 3	300					
2008	SL	Bond Creek Burn	225					
2008	SL	Buck Creek Burns # 2, # 3	180					
2008	SL	Burns Fuels/Fire funding	1275					
2008	TL	Nelson Miller & Mid Logan			80			
2008	SB	Weed Control-08 Bob Marsh.				957		
2009	SL	Cat Creek Burn	150					
2009	SL	Condon Cr. Burn	230					
2009	SL	Lost Burn	1,050					
2009	SB	Prescribed burn extension	300					
2009	SB	Wilderness Weed treatments				1900		
2010	SB	Weed treatments				1007		
2010	SL	PCTC Legacy Lands						43930
		TOTALS	26675	1417	903	5375	5345	52142

An analysis of forage production, based upon forage habitat on tree dominated sites and treatment intervals on shrub dominate sites has not been completed. There are good reasons why browse data are not collected. The ecological and political issues involved are overwhelmingly complex. Typically, more than one ungulate species is involved, and often the ungulates occupy different ranges at different times of the year. With these complexities, even the beginning step of data collection might be abandoned. Second, some of the methods, such as determining the percent-twigs-browsed, require a great deal of time in a small area before a usable dataset is acquired. Under these circumstances, acquiring data at the landscape level is unrealistic. Biologists simply lack the time required to collect data. Third, the data collected does not necessarily indicate if the browsing is at acceptable or excessive levels. For example, determining the percent-twigs-browsed tells the manager something about the level of herbivory, but without a separate study to document the physiological effects of that herbivory, the manager cannot be sure how browsing will affect the shrub community. This uncertainty lessens the enthusiasm for data collection. The lack of certainty also influences the manager's ability to explain management decisions to interested parties, including other resource managers, grazing permittees, environmental groups, and sportsman's groups. Given the problems described above, the collection of browse data may become a daunting project. There are ways to improve the situation. Complex issues can be simplified by focusing on key areas and indicator species.

An alternative is to evaluate habitat conditions and needs at the project level. Habitat improvement acreage has increased since the last reporting period and it is more acres than expected under Forest Plan desired conditions. Management of elk and mule deer winter ranges to provide forage is important to maintain or improve elk population levels, but other elements of winter range management are also important. Current winter range management gives consideration to hunting season cover needs, increased vulnerability due to improved hunter access, the maintenance of an interspersion of cover and forage blocks, treatments occurring on adjacent lands, lower than required budgets for treatment implementation, and habitat considerations for other wildlife species. In addition, mild winters, severe winters, predation, early snow cover during the harvest, habitat loss due to private land development, and liberalized hunting opportunities also affect the population. With the recent national emphasis from the National Fire Plan and community protection through the management of WUI, fuel reduction needs undoubtedly decrease canopy coverage while likely increasing forage production.

Recommended Action: In addition to habitat quality and quantity, many factors other than Forest Service management can influence big game populations. The state has the responsibility to monitor big game and harvest success, to regulate the harvest accordingly for sustainable populations. The Flathead National Forest should 1) continue consulting with Montana Fish, Wildlife & Parks (FWP) biologists to arrive at site specific objectives for the affected habitat and 2) continue to evaluate cover/forage, road density and other relationships for effects analysis at the project level, while addressing the cumulative effects of prescribed burning, wildfire and timber harvest or fuels reduction for WUI community protection projects. From a Forest Service perspective, measures of FWP harvest/trend statistics, habitat security and access management changes, and acres of habitat improvement are important features of big game management and should be used as surrogates to indirectly estimate the effects of forest management on big game.